Tribhuvan University
## Institute of Science and Technology
2080
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Bachelor Level / Second Year/ Fourth Semester          Full Marks: 60
**Bachelors in Information Technology (BIT 252)**          Pass Marks: 24
(Artificial Intelligence)          Time: 3 hours

*Candidates are required to give their answers in their own words as for as practicable.*
The figures in the margin indicate full marks.

### Section A

Long Answer Questions
**Attempt any TWO questions.**          [2×10=20]

1. How do you evaluate any searching algorithm? What are constraint satisfaction problems? Differentiate between Greedy Best First Search and A* search.          [3 + 2 + 5]

2. Express the mathematical model of a neuron. Distinguish between learning rule and learning rate. How Back-propagation algorithm is used in learning? Explain.          [2 + 2 + 6]

3. What are the issues in knowledge representation? Given the following knowledge base, using resolution show that "Ava likes watermelon".          [3 + 7]
   a) Ava likes all kind of fruits.
   b) Apple and watermelon are fruits.
   c) Ava eats watermelon and love it so much.
   d) Anything eaten by anybody and love it so much if fruits.

### Section B

Short Answer Questions.
**Attempt any EIGHT questions**          [8×5=40]

4. Explain the different steps in NLP.          [5]

5. Describe the components of expert system.          [5]

6. What is the role of rewards and punishment in reinforcement learning? Describe with an example.          [5]

7. Represent the following knowledge using conceptual dependency.          [5]
   a) He opened the door.
   b) Ram gave rose to Sita.
   c) She is crying.

8. Distinguish between Depth First Search and Breadth First Search.          [5]

9. What is rational agent? List some applications of AI.          [2 + 3]

10. Explain about unification and lifting with example.          [5]

11. Distinguish between simple reflex agent and model based agent.          [5]

12. How does script can be used in representing knowledge? Explain.          [5]

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